



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,462	10/07/2003	Pascal Baron	243593US0	3160
22850	7590	12/22/2005		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER DRODGE, JOSEPH W	
			ART UNIT	PAPER NUMBER
			1723	
DATE MAILED: 12/22/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/679,462

Applicant(s)

BARON ET AL.

Examiner

Joseph W. Drodge

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10-25 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) ☐ Notice of Informal Patent Application (PTO-152) |
| 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2004</u> | 6) ☐ Other: ____ |

Art Unit: 1723

The abstract of the disclosure is objected to because it is written in two paragraphs, resubmission as a single paragraph is required. Correction is required. See MPEP § 608.01(b).

Claims 10-25 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claims cannot depend from any other multiple dependent claims. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, part e) "with a view to ' is indefinite as it is unclear as to whether reuse/recycling of extractant or extractants is positively recited. In claim 6, "leading to..." is similarly indefinite.

In claim 5, it is unclear whether or how the "two organic phases" are related to the steps of claim 1, and unclear how they relate to the other method steps, claim 1 only reciting a single organic phase.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1723

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bohlmann patent 2,897,046 in view of Fortress et al patent 2,572,128, Nease patent 4,595,529 and Nemoto et al patent 5,523,515.

Bohlmann discloses cyclical method and reuse of extractants (column 10, lines 14-15) in a process for co-extracting chemical element 1 (thorium) and chemical element 2 (uranium) from an acidic aqueous solution through use of first extractant (tributyl phosphate), and mixtures of second solvents which also function as diluents (column 2, lines 14-27), selectively stripping element 1 and then element 2 with

Art Unit: 1723

separate aqueous solutions (see especially column 9, line 33-column 10, line 10), and then reusing the extractant(s) in following cycles (column 10, lines 14-15).

The claims firstly differ in requiring the second extractant to be added to an already existing organic phase containing the extracted chemical elements in first extractant. Fortress teaches in column 2, line 51-column 3, line 20 to add extractants, including tributyl phosphate, and diluents in succession or in successive stages. It would have been obvious to one of ordinary skill in the art to have adjusted the Bohlmann process by adding the extractants separately, as suggested by Fortress, so as to ensure that the proper amount of second extractant(s)/diluent(s) are present to form an azeotrope that will later allow easy separation of solvent from aqueous phase by distillation (column 2, lines 51-55 of Fortress).

The claims also differ in requiring, in step e) the separation of the 1st and 2nd extractants from each other at end of step d). Fortress already suggests such separation by distillation [as in claims 3 and 6-9]. Nease teaches separation of the tributyl phosphate solvent and diluent/hydrocarbon solvents from each other in a process for removing uranium from effluent (column 14, lines 6-16) as does Nemoto et al (column 2, lines 33-43). In summary, it would have been obvious to one of ordinary skill in the art to modify the Bohlmann process by incorporating the step of separating 1st and 2nd solvents/diluents from each other, as taught by Fortress et al, Nease and Nemoto et al, to facilitate greater reuse of the solvents and diluents to purify larger amounts of effluent over longer, continuous cycles of time, and to recycle scarce resources.

Art Unit: 1723

With regard to specific techniques to separate the solvents and diluents in claims 2-7, see claim 1 of Nease pertaining to aqueous solubilization, and claims 1 and 4 of Nemoto pertaining to distillation and cryogenic stages, respectively. All of these separation techniques are deemed to qualify as "demixing" techniques as recited in claim 5, also see the decanting of Nease at column 9, lines 30-32. Further purification of the solvents and diluent organic phases by washing and filtration is shown by Fortress at column 3, lines 29-49, etc.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Peppard et al patent 3,745,205 teaches co-extraction of uranium and thorium fractions with organic solvent and diluent and successive stripping of the fractions with aqueous solutions, however lacks suggestion of reusing or purifying spent solvent. Horwitz et al patent 4,548,790 coextracts actinide and lanthanide with organic solvent and diluent and then strips with aqueous solution

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached at 571-272-1151. The fax phone number for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from

Art Unit: 1723

the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

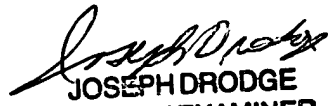
JWD

December 20, 2005

Application/Control Number: 10/679,462

Page 7

Art Unit: 1723


JOSEPH DRODGE
PRIMARY EXAMINER